CONTENTS OF VOLUME 53

NO. 1, JANUARY 1985

Stimulus- and Amino Acid-Induced Calcium and Potassium Changes in Rat Neocortex *R. Pumain U. Heinemann* 1

Selective Inhibition of Glucose-Sensitive Neurons in Rat Lateral Hypothalamus by Noxious Stimuli and Morphine *S. K. Sikdar Y. Oomura* 17

Responses of Tendon Organs to Unfused Contractions of Single Motor Units *L. Jami J. Petit U. Proske D. Zytnicki* 32

Representation of Stimulus Azimuth by Low-Frequency Neurons in Inferior Colliculus of the Cat *L. M. Aitkin J. D. Pettigrew M. B. Calford S. C. Phillips L. Z. Wise* 43

Receptor Potentials of Isolated Frog Muscle Spindle Evoked by Sinusoidal Stimulation *H. Querfurth* 60

Action Potential Patterns of Isolated Frog Muscle Spindle in Response to Sinusoidal Stimulation *H. Querfurth* 76

Interaural Time and Intensity Coding in Superior Olivary Complex and Inferior Colliculus of the Echolocating Bat *Molossus ater* *G. Harnischfeger G. Neuweiler P. Schlegel* 89

Neural Circuits in the Flight System of the Locust *R. M. Robertson K. G. Pearson* 110

Contrasting Neuronal Activity in Supplementary and Precentral Motor Cortex of Monkeys. I. Responses to Instructions Determining Motor Responses to Forthcoming Signals of Different Modalities *J. Tanji K. Kurata* 129

Contrasting Neuronal Activity in Supplementary and Precentral Motor Cortex of Monkeys. II. Responses to Movement Triggering vs. Nontriggering Sensory Signals *K. Kurata J. Tanji* 142

Properties of Persistent Sodium Conductance and Calcium Conductance of Layer V Neurons From Cat Sensorimotor Cortex In Vitro *C. E. Stafstrom P. C. Schwindt M. C. Chubb W. E. Crill* 153

Calcium Spike and Calcium-Dependent Potassium Conductance in Mechanosensory Neurons of the Lamprey *J. P. Leonard W. O. Wickelgren* 171

Projection from Dorsal Column Nuclei to Dorsal Mesencephalon *L. L. Cooper J. O. Dostrovsky* 183

Classification of Response Patterns in Cochlear Nucleus of Barn Owl: Correlation With Functional Response Properties *W. E. Sullivan* 201

Activity of Neurons in Putamen During Active and Passive Movements of Wrist *S. L. Liles* 217

Apparent Movement of Optic Terminals Out of a Local Postsynaptically Blocked Region in Goldfish Optic Tectum *J. T. Schmidt* 237

Segmental Differences in Pathways Between Crayfish Giant Axons and Fast Flexor Motoneurons *L. A. Miller G. Hagiwara J. J. Wine* 252

Modification of Saccadic Eye Movements by GABA-Related Substances. I. Effect of Muscimol and Bicuculline in Monkey Superior Colliculus *O. Hikosaka R. H. Wurtz* 266

Modification of Saccadic Eye Movements by GABA-Related Substances. II. Effects of Muscimol in Monkey Substantia Nigra Pars Reticulata *O. Hikosaka R. H. Wurtz* 292
Tonotopic Organization in Ventral Nucleus of Medial Geniculate Body in the Cat *T. J. Imig A. Morel* 309

NO. 2, FEBRUARY 1985

Impulse Rates and Sensitivity to Stretch of Soleus Muscle Spindle Afferent Fibers During Locomotion in Premammillary Cats *J. Taylor R. B. Stein P. R. Murphy* 341
Effects of Medial Geniculate Lesions on Sound Localization by the Rat *J. B. Kelly P. W. Judge* 361
Signal Transmission in the Catfish Retina. I. Transmission in the Outer Retina *M. Sakuranaga K.-I. Naka* 373
Signal Transmission in the Catfish Retina. II. Transmission to Type-N Cell *M. Sakuranaga K.-I. Naka* 390
Signal Transmission in the Catfish Retina. III. Transmission to Type-C Cell *M. Sakuranaga K.-I. Naka* 411
Sensory Processing in a Thermal Afferent Pathway *S. N. Davies G. E. Goldsmith R. F. Hellc D. Mitchell* 429
Sequential Activation of Neurons in Primate Motor Cortex During Unrestrained Forelimb Movement *J. T. Murphy Y. C. Wong H. C. Kwan* 435
Sensitivity to Amplitude Modulated Sounds in the Anuran Auditory Nervous System *G. J. Rose R. R. Capranica* 446
Mechanisms of Pattern Generation Underlying Swimming in *Tritonia*. IV. Gating of Central Pattern Generator *P. A. Getting M. S. Dekin* 466
Effects of Unilateral Lesions of the Flocculus on Optokinetic and Vestibuloocular Reflexes of the Rabbit *N. H. Barmack V. E. Pettorossi* 481
Distribution of Oligosynaptic Group I Input to the Cat Medial Gastrocnemius Motoneuron Pool *R. K. Powers M. D. Binder* 497
Determination of Afferent Fibers Mediating Oligosynaptic Group I Input to Cat Medial Gastrocnemius Motoneurons *R. K. Powers M. D. Binder* 518
Primate Globus Pallidus and Subthalamic Nucleus: Functional Organization *M. R. DeLong M. D. Crutcher A. P. Georgopoulos* 530
Cat Lateral Suprasylvian Cortex: Y-Cell Inputs and Corticotectal Projection *D. M. Berson* 544
Use-Dependent Depression of IPSPs in Rat Hippocampal Pyramidal Cells In Vitro *M. McCarren B. E. Alger* 557
Role of Visual Experience in Activating Critical Period in Cat Visual Cortex *G. D. Mower W. G. Christen* 572
Analysis of Decreased Conductance Serotonergic Response in *Aplysia* Ink Motor Neurons *J. P. Walsh J. H. Byrne* 590

NO. 3, MARCH 1985

Primate Frontal Eye Fields. I. Single Neurons Discharging Before Saccades *C. J. Bruce M. E. Goldberg* 603
White Noise Analysis of Cable Properties of Neuroblastoma Cells and Lamprey Central Neurons *L. E. Moore B. N. Christensen* 636

Simulation of Synaptic Depression, Posttetanic Potentiation, and Presynaptic Facilitation of Synaptic Potentials From Sensory Neurons Mediating Gill-Withdrawal Reflex in *Aplysia*
K. J. Gingrich J. H. Byrne 652
Simple and B-Cells in Cat Striate Cortex. Complementarity of Responses to Moving Light and Dark Bars
R. Maske S. Yamane P. O. Bishop 670
An Electrophysiological and Anatomical Study of Projections to the Mouse Cortical Barrelfield and Its Surroundings
J.-C. Nussbaumer H. van der Loos 686
Roles of Aspartate and Glutamate in Synaptic Transmission in Rabbit Retina. I. Outer Plexiform Layer
S. A. Bloomfield J. E. Dowling 699
Roles of Aspartate and Glutamate in Synaptic Transmission in Rabbit Retina. II. Inner Plexiform Layer
S. A. Bloomfield J. E. Dowling 714
Responses of Neurons in the Cat's Superior Colliculus to Acoustic Stimuli. I. Monaural and Binaural Response Properties
J. A. Hirsch J. C. K. Chan T. C. T. Yin 726
Responses of Neurons in the Cat's Superior Colliculus to Acoustic Stimuli. II. A Model of Interaural Intensity Sensitivity
T. C. T. Yin J. A. Hirsch J. C. K. Chan 746
Axonal Branching Patterns and Funicular Trajectories of Raphespinal Sympathoinhibitory Neurons
S. F. Morrison G. L. Gebber 759
Raphe Magnus Inhibition of Feline T_1–T_4 Spinoreticular Tract Cell Responses to Visceral and Somatic Inputs
C. D. Chapman W. S. Ammons R. D. Foreman 773
Comparable Patterns of Muscle Facilitation Evoked by Individual Corticomotoneuronal (CM) Cells and by Single Intracortical Microstimuli in Primates: Evidence for Functional Groups of CM Cells *P. D. Cheney E. E. Fetz* 786
Patterns of Facilitation and Suppression of Antagonist Forelimb Muscles From Motor Cortex Sites in the Awake Monkey
P. D. Cheney E. E. Fetz S. S. Palmer 805
Physiology of a Bidirectional, Excitatory, Chemical Synapse
P. A. V. Anderson 821
Tonotopic Organization in Lateral Part of Posterior Group of Thalamic Nuclei in the Cat *T. J. Imig A. Morel* 836
Announcements 852

NO. 4, APRIL 1985

Afferent Facilitation Induced by Iontophoretic Application of Acidic Amino Acids in the Ampullary Electroreceptors of *Plotosus*
T. Nagai S. Obara 853
Muscle-Fiber Compartmentalization in Cat Splenius Muscles
F. J. R. Richmond D. R. R. MacGillis D. A. Scott 868
Kinematic Representation of Imposed Forearm Movements by Pericruciate Neurons (Areas 4 and 3a) in the Awake Cat
W. Bedingham W. G. Tatton 886
Flight-Initiating Interneurons in the Locust
K. G. Pearson D. N. Reye D. W. Parsons G. Bicker 910
Bursts and Recurrences of Bursts in the Spike Trains of Spontaneously Active Striate Cortex Neurons *C. R. Legéndy M. Salcman* 926
Similarity of Dynamic Range Adjustment in Auditory Nerve and Cochlear Nuclei
D. J. Gibson E. D. Young J. A. Costalupes 940

Characteristics of Corticomotoneuronal Postspike Facilitation and Reciprocal Suppression of EMG Activity in the Monkey *R. J. Kasser P. D. Cheney* 959
Thigh Muscle Activity During Maximum-Height Jumps by Cats *F. E. Zajac* 979
A Dorsal Spinal Neural Network in Cat. III. Dynamic Nonlinear Analysis of Responses to Random Stimulation of Single Type 1 Cutaneous Input Fibers *A. D. Craig D. N. Tapper* 995
Histaminergic Synaptic Transmission in the Cerebral Ganglion of *Aplysia R. E. McCaman D. Weinreich* 1016
Transient Voltage and Calcium-Dependent Outward Currents in Hippocampal CA3 Pyramidal Neurons *K. L. Zbicz F. F. Weight* 1038
Visceral and Somatic Afferent Convergence Onto Neurons Near the Central Canal in the Sacral Spinal Cord of the Cat *C. N. Honda* 1059
Sustained Potential Shifts and Paroxysmal Discharges in Hippocampal Formation *G. G. Somjen P. G. Aitken J. L. Giacchino J. O. McNamara* 1079
Potassium and Calcium Concentrations in Interstitial Fluid of Hippocampal Formation During Paroxysmal Responses *G. G. Somjen J. L. Giacchino* 1098
Inhibition and Level-Tolerant Frequency Tuning in the Auditory Cortex of the Mustached Bat *N. Suga K. Tsuzuki* 1109
Announcements 1146

NO. 5, MAY 1985

Organization of Receptive Fields of Spiking Local Interneurons in the Locust With Inputs From Hair Afferents *M. Burrows M. V. S. Siegler* 1147
Development of Spatial Receptive-Field Organization and Orientation Selectivity in Kitten Striate Cortex *B. O. Braastad P. Heggelund* 1158
Firing Patterns of Human Flexor Carpi Radialis Motor Units During the Stretch Reflex *B. Calancie P. Bawa* 1179
Voluntary and Reflexive Recruitment of Flexor Carpi Radialis Motor Units in Humans *B. Calancie P. Bawa* 1194
Integration of Nonphaselocked Exteroceptive Information in the Control of Rhythmic Flight in the Locust *H. Reichert C. H. F. Rowell* 1201
Localization of Cortical Areas Activated By Thinking *P. E. Roland L. Friberg* 1219
Simple- and Complex-Cell Response Dependences on Stimulation Parameters *H. Spitzer S. Hochstein* 1244
A Complex-Cell Receptive-Field Model *H. Spitzer S. Hochstein* 1266
Orientation Sensitivity of the Cat Assessed From Evoked Potentials: Central and Peripheral Contributions *J. S. Tootle M. A. Berkley* 1287
Relationship Among Recruitment Order, Axonal Conduction Velocity, and Muscle-Unit Properties of Type-Identified Motor Units in Cat Plantaris Muscle *F. E. Zajac J. S. Faden* 1303
Membrane Electrical Properties and Prediction of Motor-Unit Type of Medial Gastrocnemius Motoneurons in the Cat *J. E. Zengel S. A. Reid G. W. Sypert J. B. Munson* 1323

NO. 6, JUNE 1985

Excitatory and Inhibitory Postsynaptic Potentials in α-Motoneurons Produced During Fictive Locomotion by Stimulation of the Mesencephalic Locomotor Region
S. J. Shefchyk L. M. Jordan 1345

Gustatory Responses of Cortical Neurons in Rats. II. Information Processing of Taste Quality
T. Yamamoto N. Yuyama T. Kato Y. Kawamura 1356

Gustatory Responses of Cortical Neurons in Rats. III. Neural and Behavioral Measures Compared
T. Yamamoto N. Yuyama T. Kato Y. Kawamura 1370

Somatotopic Distribution of Trigeminal Nociceptive Neurons in Ventrobasal Complex of Cat Thalamus
T. Yokota N. Koyama N. Matsumoto 1387

Microstimulation of the Primate Neostriatum. I. Physiological Properties of Striatal Microexcitable Zones
G. E. Alexander M. R. DeLong 1401

Microstimulation of the Primate Neostriatum. II. Somatotopic Organization of Striatal Microexcitable Zones and Their Relation to Neuronal Response Properties
G. E. Alexander M. R. DeLong 1417

Cat Retinal Ganglion Cell Receptive-Field Alterations After 6-Hydroxydopamine Induced Dopaminergic Amacrine Cell Lesions
G. W. Maguire E. L. Smith, III 1431

Responses to Head Tilt in Cat Central Vestibular Neurons. II. Frequency Dependence of Neural Response Vectors
R. H. Schor A. D. Miller S. J. B. Timerick D. L. Tomko 1444

Development of Locomotor Mechanisms in the Frog
D. J. Stehouwer P. B. Farel 1453

Single-Unit Responses in the Inferior Colliculus: Different Consequences of Contralateral and Ipsilateral Auditory Stimulation
M. N. Semple L. M. Kitzes 1467

Single-Unit Responses in the Inferior Colliculus: Effects of Neonatal Unilateral Cochlear Ablation *L. M. Kitzes M. N. Semple* 1483

Three Forms of the Scratch Reflex in the Spinal Turtle: Movement Analyses *L. I. Mortin J. Keifer P. S. G. Stein* 1501

Three Forms of the Scratch Reflex in the Spinal Turtle: Central Generation of Motor Patterns
G. A. Robertson L. I. Mortin J. Keifer P. S. G. Stein 1517

Effects of Pattern Deprivation on Visual Cortical Cells in the Rabbit: A Reevaluation *E. H. Murphy* 1535

Axonal Projection Patterns of Ventrolateral Medullospinal Sympathoexcitatory Neurons *S. M. Barman G. L. Gebber* 1551

Differential Changes in the End-Plate Architecture of Functionally Diverse Muscles During Aging
J. L. Rosenheimer D. O. Smith 1567

Effects of Chronic Stress and Exercise on Age-Related Changes in End-Plate Architecture *J. L. Rosenheimer* 1582

Axonal Projections of Single Bulbospinal Inspiratory Neurons Revealed by Spike-Triggered Averaging and Antidromic Activation
T. E. Dick A. J. Berger 1590

Long-Latency Spinal Reflexes in Humans
K. Darton O. C. J. Lippold M. Shahani U. Shahani 1604

Indexes 1619